

METHOD FOR LIGHTING AN INDUCTIVELY COUPLED PLASMA
AT LOW PRESSURE

ABSTRACT OF THE DISCLOSURE

A method is described for lighting an inductive plasma in a plasma processing tool having a matching network, at pressures of about 20 mTorr and below. A matching condition for a capacitive plasma is determined, which then is used to define a match preset condition. When a plasma is started with the matching network in that preset condition, a capacitive plasma ignites and is maintained with a minimum of power. Excess power (power greater than that required to maintain the capacitive plasma) transfers the plasma to the inductive mode. The matching condition for the capacitive plasma may be determined by lighting a plasma, setting a power delivered thereto at not more than about 20 watts, and allowing the matching network to tune to the plasma. A capacitive plasma may be easily started at this preset condition. Current produced in the coil due to the excess power then causes the inductive plasma to light. The matching network changes from the preset matching condition to a matching condition under which the matching network is tuned to the inductive plasma.

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